

7 A. providing a hydrogen containing fuel to the anode
8 and an oxygen containing oxidant to the cathode
9 to generate, for a first period of time, an
10 electric current within the external circuit for
11 operating the primary electricity using device,
12 the cell operating conditions being selected such
13 that, during the course of said first period of
14 time, the cathode potential is maintained above
15 0.66 volt and cell performance decreases;

16 B. regenerating the cell after Step A by
17 a) providing a hydrogen containing fuel to the
18 anode while operating said cell using procedures
19 selected to reduce the cathode potential to below
20 0.50 volt, said procedures including the steps of
21 i) disconnecting the primary electricity using
22 device from the external circuit and leaving the
23 circuit open, and ii) stopping the flow of
24 oxidant to the cell and allowing the oxidant
25 remaining within the cell to be consumed at the
26 cathode; and, b) maintaining the cathode
27 potential below the said 0.50 volt for a second
28 period of time sufficient to essentially restore
29 the cell performance decrease which occurred
30 during the course of Step A; and,

31 C. sequentially repeating Steps A and B to reduce
32 the decrease in cell performance over time.

1 21. A method of operating a fuel cell having a PEM as the
2 electrolyte, an anode on one side of the PEM, a
3 cathode on the other side of the PEM, an external
4 electric circuit connecting the anode and cathode,

5 and a primary electricity using device within the
6 external circuit, comprising the steps of

7 A. providing a hydrogen containing fuel to the anode
8 and an oxygen containing oxidant to the cathode
9 to generate, for a first period of time, an
10 electric current within the external circuit for
11 operating the primary electricity using device,
12 the cell operating conditions being selected such
13 that, during the course of said first period of
14 time, the cathode potential is maintained above
15 0.66 volt and cell performance decreases;

16 B. regenerating the cell after Step A by

17 a) providing a hydrogen containing fuel to the
18 anode while operating said cell using procedures
19 selected to reduce the cathode potential to below
20 0.50 volt, said procedures including the steps of
21 i) disconnecting the primary electricity using
22 device from the external circuit, and ii) with an
23 auxiliary resistive load connected across the
24 cell, stopping the flow of oxidant to the cell
25 and allowing the oxidant remaining within the
26 cell to be consumed at the cathode creating a
27 current flow through the auxiliary resistive
28 load; and, b) maintaining the cathode potential
29 below the said 0.50 volt for a second period of
30 time sufficient to essentially restore the cell
31 performance decrease which occurred during the
32 course of Step A; and,

33 C. sequentially repeating Steps A and B to reduce
34 the decrease in cell performance over time.

In compliance with 37 CFR 1.173(c), attached hereto is a statement of status and support for claims 20 and 21.

Respectfully submitted,

Stephen E. Revis
Reg. No. 26,609

A handwritten signature in black ink, appearing to read 'Stephen E. Revis', with a long horizontal flourish extending to the right.

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